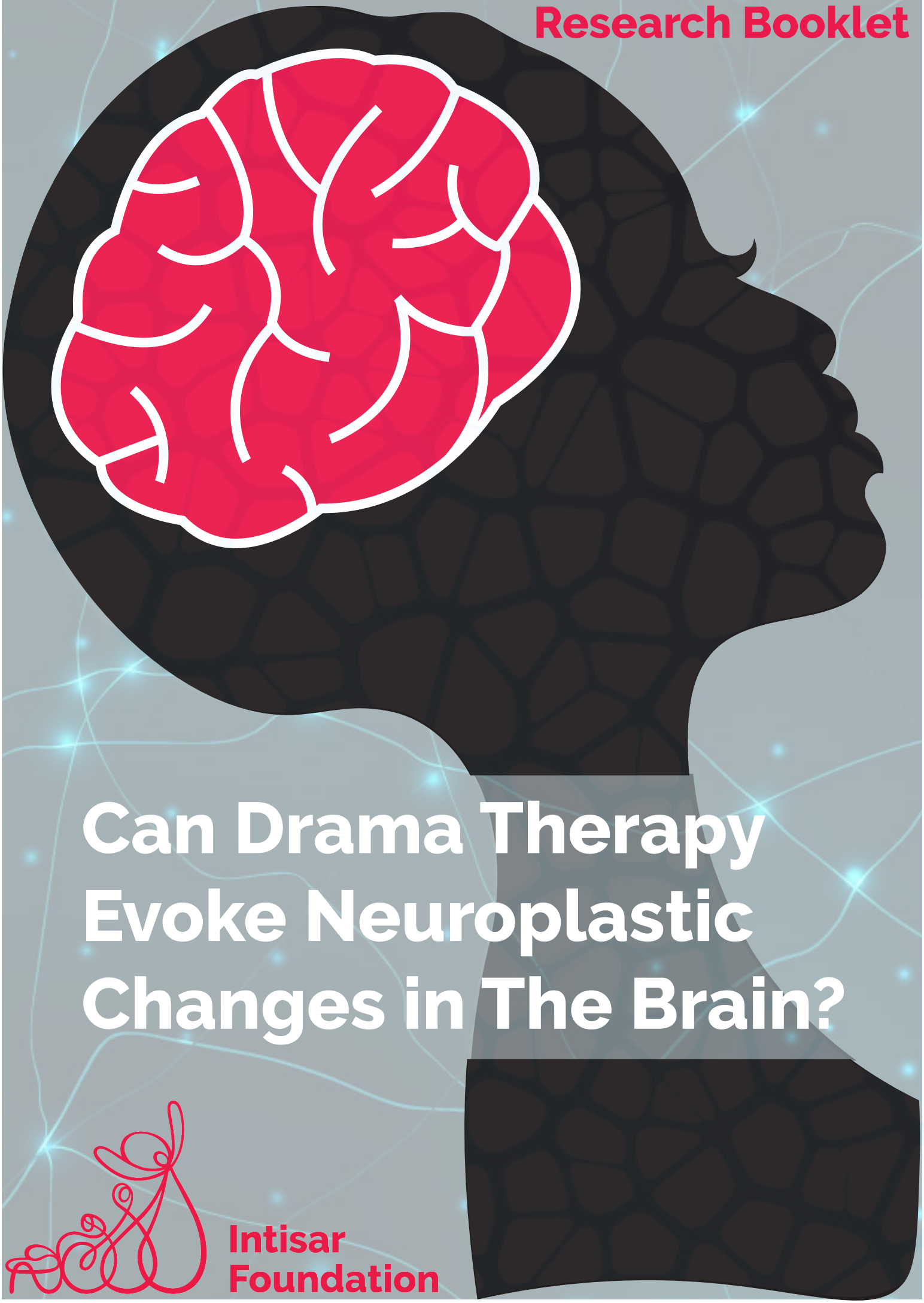
Research Booklet



# Can Drama Therapy Evoke Neuroplastic Changes in The Brain?

Intisar Foundation

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# Section one:

## Introduction

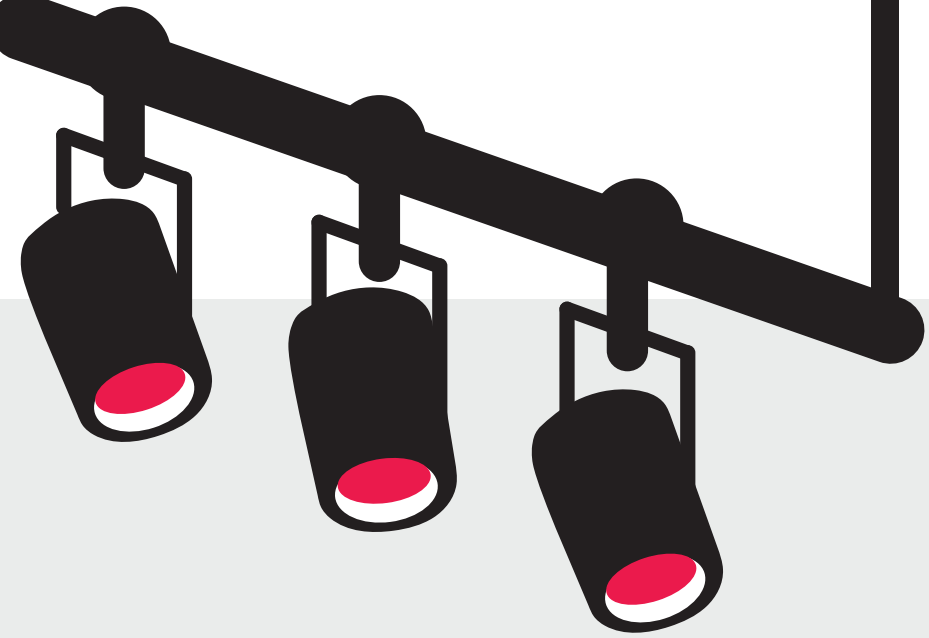
# Intisar Foundation

Intisar Foundation is a nonprofit charitable organization registered in the UK and the first and only NGO in the world that promotes mental health and emotional well-being for women affected by war through the use of Drama Therapy. Our aim is to reach peace in the Arab world by empowering 1 Million Arab Women. Intisar Foundation was founded in 2018 by HH Sheikha Intisar AlSabah after she realized the lack of initiatives that support the psychological wellbeing of women affected by war in the Arab world.

We use Drama Therapy, a form of creative arts therapy, and a combination of psychology and theater as it is a very gentle yet effective tool that provides a deeply therapeutic process. Our community-based interventions, within some of the most marginalized communities in Lebanon and Jordan, enable the women to heal their trauma and become empowered. Our unique approach makes us also the only NGO in the Arab world solely focused on the psychological and mental health of women, who are the cornerstone of the family and the society.

## What is Drama Therapy?

Drama Therapy is a creative arts therapy that utilizes theatre techniques to achieve therapeutic goals. Drama Therapy started in the 1920s when Romanian Psychologist Jacob Moreno started integrating theatre into psychotherapy, resulting in the basis for Drama Therapy today. This approach allows the participants to use acting, dancing, and role play to discover emotional and psychological issues in a non-verbal way. This allows for the use of the body and voice as instruments for self-expression and exploration. This unique approach ensures a non-stigmatizing intervention that can be implemented on a community level (or as group therapy), which builds a sense of security among the group.



Intisar Foundation implements two kinds of Drama Therapy programs, intensive and follow up. The intensive program consists of weekly and sequential sessions, while the follow-up consists of monthly encompassing sessions that the participants are invited to attend after finishing their intensive program. Each group we work with consists of 15-20 women, to ensure that every participant has the chance to fully benefit from the program. The intensive program is designed to improve emotional awareness, create a sense of belonging, and tackle trauma. It works in several phases.

**The first phase** allows the group to develop a rapport and build trust among each other and the facilitator.

**The second phase** uses creative activities to introduce the participants to techniques to help them better manage their emotions, feeling a deep therapeutic process, and facilitate a starting point for self-exploration.

**The third phase** encourages a deeper of inward reflection, all while emphasizing group solidarity and a sense of community.

**The final phase** focuses on developing social and emotional skills and self-confidence to enable better inter– and intrapersonal skills.

## How we use Drama Therapy to heal and empower women

The follow-up program is designed to provide sustained support over the long term. Each session starts and ends ritualistically to create a sense of consistency, while the main activities are designed to have a sense of closure, ensuring that all the issues that come up during the session are dealt with. For both programs, each session lasts three hours.

The approach used by our facilitators is mainly socio-drama and incorporates multidisciplinary tools from playback theatre, physical theatre, theatre of the oppressed, and psychodrama. Our facilitators maintain a flexible approach as every group and every setting they work within has different needs. We work in primarily refugee dense and marginalized areas in Jordan and Lebanon to be able to reach the most vulnerable populations. We partner with reputable local NGOs and socio-cultural community centers located within these areas to be able to hold our programs in a geographically convenient manner.

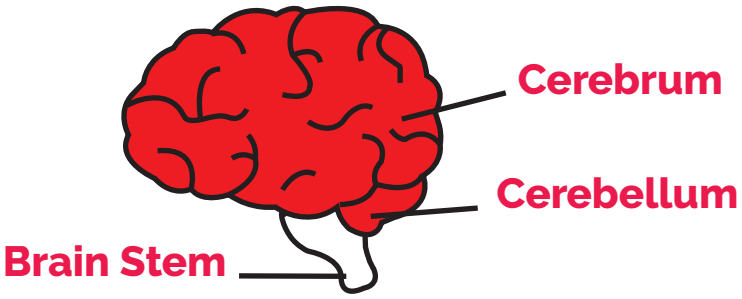
# Who we work with

Intisar Foundation predominantly works with two populations, refugee and socio-economically disadvantaged women. The refugee population in the Arab world suffers from a plethora of social and economic problems brought about by post-migration complications besides the trauma of having lived through war. The socioeconomically disadvantaged women live in areas lacking infrastructure, suffering from poverty with high rates of street violence and domestic abuse.

There is a lack of social support systems for both populations, many of the women we work with are suffering from compound issues in their lives. Intimate partner violence is a fairly common issue that maybe attributed to the power dynamic in their households and a lack of awareness of women's rights. Social exclusion is another common issue that women face in their daily lives as racism and classism will often lead to low employment and future prospects. The majority of women step into the program with very high rates and comorbidity of post-traumatic stress disorder, depression, generalized anxiety, low self-esteem, and a distorted self-image.

# Neuroscience and the brain

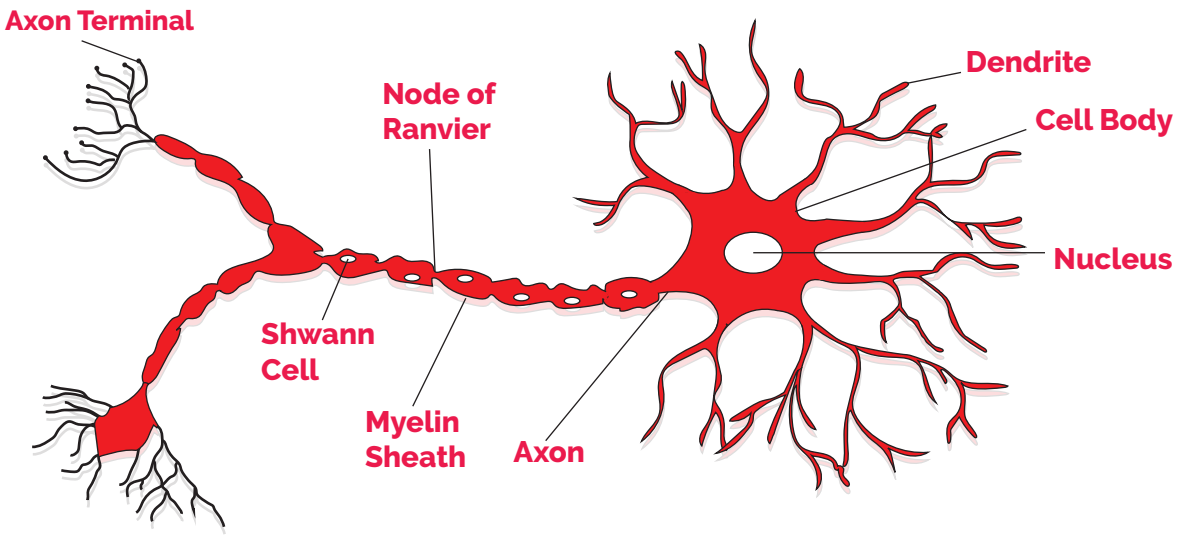
## The human brain




The **brain** is the most complex organ in the human body and the most vital to understand personality. It governs biological function as well as mental and emotional states. Mainly, the brain consists of 3 parts, the **brainstem**, **cerebellum**, and **cerebrum**. The brainstem controls the automatic functions like breathing, heart rate, as well as providing a communication loop between the spinal cord and the brain.

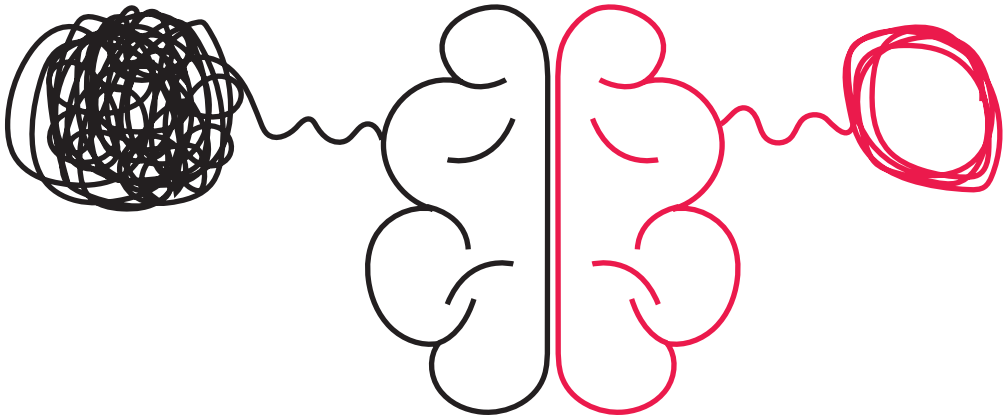
The cerebellum is a small part of the brain located under the cerebrum, it is involved in posture, balance and motor coordination. The cerebrum is the largest part of the human brain which contains the "grey matter", it comprises 85% of the brain mass. The cerebrum is comprised of two hemispheres: right, and left.[1] The cerebrum is responsible for all voluntary actions of the brain including thoughts, problem-solving skills, personality traits, reasoning and emotion regulation.

The primary cell in the brain and nervous system is called the neuron. Neurons make the brain's work possible by relaying sensations, emotions, thoughts and coordinating behaviors. They are connected in networks and these connections can change over time and with new experiences. As new habits are acquired, the neural connections can be rewired to form new pathways.[2]




1. Brain Basics: Know Your Brain | National Institute of Neurological Disorders and Stroke. (2020). Retrieved 11 June 2020, from https://www.ninds.nih.gov-/disorders/patient-caregiver-education/know-your-brain
2. Ackerman, S. (1992). Discovering the brain. Washington, D.C.: National Academy Press.

# Psychotherapy: Link between brain and behavior



**Neuroscientific research** can support the work of psychologists and mental health professionals. Experimental scientific findings of the behavioral and physiological changes brought by the healing techniques can help validate and better inform the work and interventions used by mental health professionals. [1]

"We already use medications and chemicals to change the way our brain works, and psychology has certainly put forth a lot of effort to learn how to change the way the brain works through modifying our thought patterns. What if we really can make permanent, significant changes to our brain structure and function through simple activities that we often do on a normal day?" [1]

***" Behavior is ultimately the product of the Brain, the most mysterious organ of them all. "***

***Ian Tattersall***

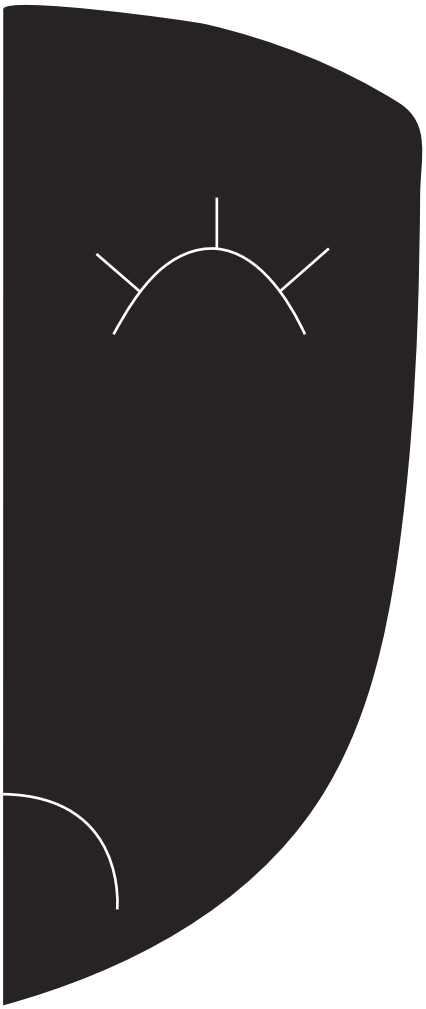
**Cognitive Behavioral Therapy (CBT)** is considered a vital tool in stimulating adaptive brain function patterns. Lewis mentions a Kings College London study where brain scans revealed that six months of CBT led to heightened brain connectivity, specifically in the parts of the brain associated with fear, reasoning, and rational thinking. Thoughts induce feelings that trigger behavior, therefore, building healthy thought patterns through CBT can help rewire the brain. [2]

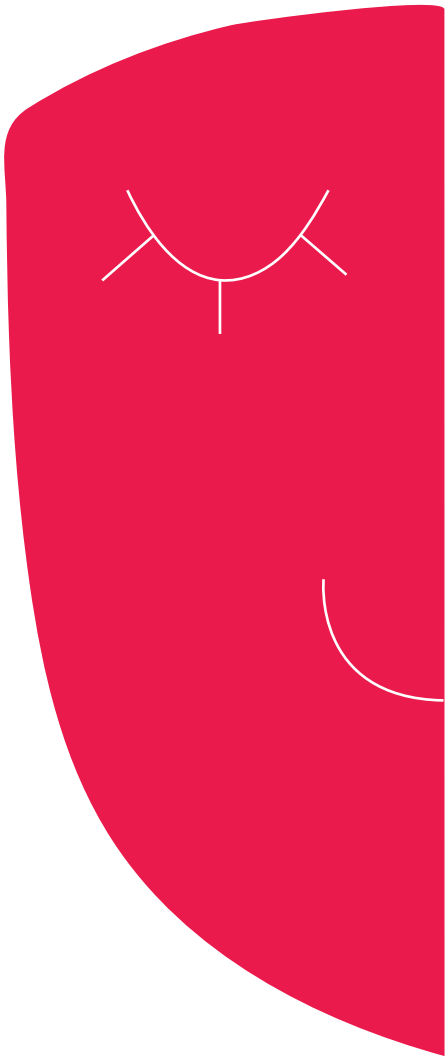

1. Ackerman, C. What is Neuroplasticity? A Psychologist Explains. (2020, April 28). Positive Psychology. Retrieved May 12th, 2020, from https://positivepsychology.com/neuroplasticity/

2. Lewis, B. How Psychotherapy Changes Your Brain. (2018, March 6). Beata Lewis MD Blog. Retrieved June 17th, 2020, from https://www.beatalewismd.com/blog/how-psychotherapy-changes-your-brain

# Drama Therapy: Brain and Behavior

Brain research has shown that neural changes can lead to behavioral changes, and vice versa. Ongoing neuroscientific research is trying to explain these sets of changes and the connections between them. So far, scientists have shown that when a new learning happens or when stimuli are intense enough or repeated enough times, new neural pathways are established. In fact, it is said that neurons that fire together wire together which means that upon stimulation of new thoughts or behaviors, neurotransmitters are released and stimulate individual neurons to grow new dendritic branches to better connect to neighbouring neurons and adapt to the changing environment. [1]

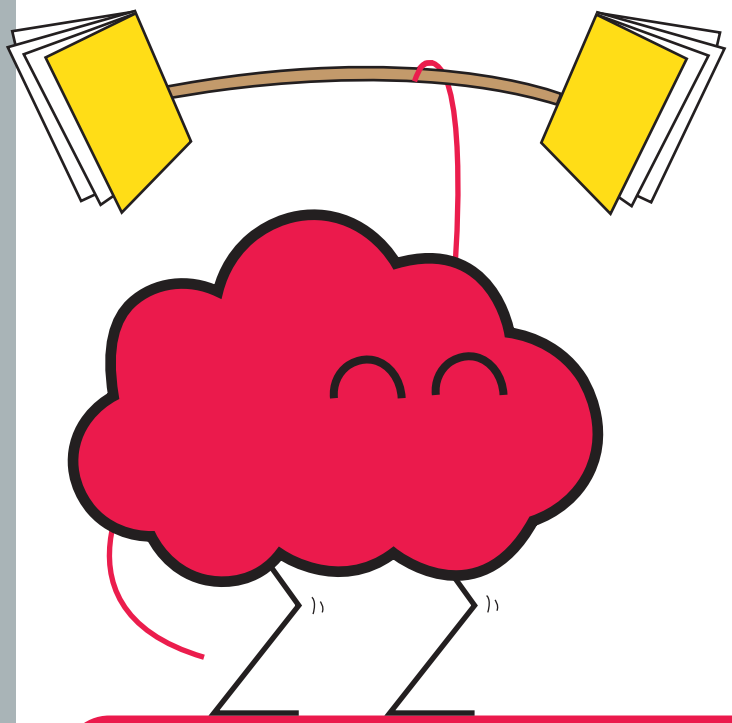




**Drama therapy** incorporates activities that lead to constant, repeated, and strong stimuli, using techniques that are perceived as new learning experiences to the receiver, which makes positive alternations in the brain and thus behavior. Drama therapy helps build and strengthen certain pathways in the brain, through reinforcing certain thinking habits, emotional processing, and physical activities.

1. Hough, B. H., & Hough, S. (2012). The Play Was Always the Thing: Drama's Effect on Brain Function. Psychology, 03(06), 454–456. DOI: 10.4236/-psych.2012.36064

# Section two:
## Neuroplasticity



**Neuroplasticity** is the brain's ability to change and adapt to new elements. The neurons will naturally get rewired and form new connections when something new is learned, or a new habit is adopted, making the brain highly plastic and flexible to new circumstances. These changes happen on a daily basis and can be beneficial or maladaptive.[1] There are three different types of changes associated with neuroplasticity, they are as follows:

**Connectivity Changes**

Involving a change in what is secreted at synapses. This is often associated with a change in short term memory as well as short term motor skills.

**Structural Changes**

This involves altering the brain's physical structure. This is often associated with facilitating long term memory or long-term improvement of motor skills.

**Functional Changes**

Whole networks can be shifted and changing in favor of different pathways." [2]

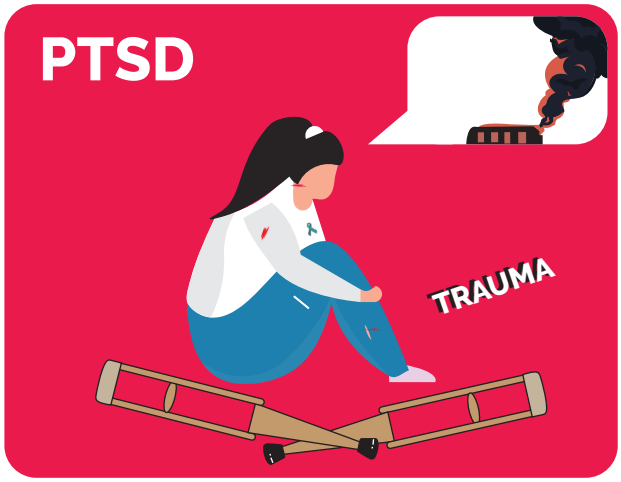

1. Ackerman, C. (2020). What is Neuroplasticity? A Psychologist Explains. Positive Psychology. Retrieved May 12th, 2020, from https://positivepsychology.com/neuroplasticity/

2. William, A. (2018). Can Drama Induce Neuroplastic Changes in the Brain? Implications for Future Research and Treatment. Research in Medical & Engineering Sciences, 6(5). DOI:10.31031/rmes.2018.06.000646

# Neuroplasticity in Treating Depression, Anxiety, Trauma and PTSD

The connection between neuroplasticity and **depression** is a two-way street, as the research on mental disorders has shown that there is negative neuroplasticity caused by depression, which causes healthy pathways in the brain to degrade, and encourages unhealthy and mal-adaptive pathways. On the other hand, many psychotherapies have proven effective to reverse the damage and help the brain recover, build, and regain healthy pathways.[1]

The same principle mentioned previously on depression applies to anxiety. Neuroplasticity can help manage **anxiety** with the right work and effort, also, permanent brain changes can be achieved through adapting and changing the thought patterns through exercises. For instance, exercises include modifying postural habits, breathing exercises, eye patterning, recall, and memory patterning, and targeting sensory perception.[2]



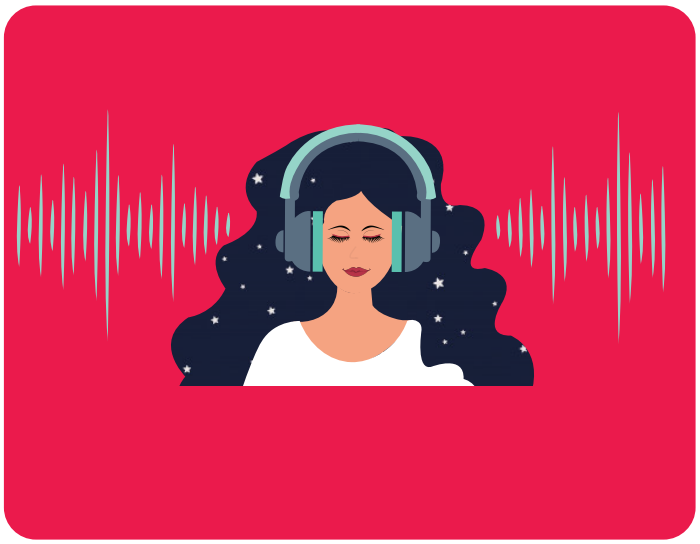

The results of a study conducted by Rabe et al suggest that "effective CBT treatment of **PTSD** maybe accompanied by adaptive changes in asymmetrical brain function." Utilizing electro graphic activity recordings, the study shows that there was a great reduction of the right anterior activation to trauma stimuli after receiving CBT for a three-month period. This physiological change corresponded to a reduction in PTSD symptoms which were tested before and after receiving CBT.[3]

1. Hellerstein, D. J. (2011). Heal your brain: How the new neuropsychiatry can help you go from better to well. Johns Hopkins University Press.
2. Ackerman, C. What is Neuroplasticity? A Psychologist Explains. (2020, April 28). Positive Psychology. Retrieved May 12th, 2020, from
3. Rabe, Sirko MA; Zoellner, Tanja MA; Beauducel, Andrë PhD; Maercker, Andreas PhD; Karl, Anke PhD. (2008). Changes in Brain Electrical Activity After Cognitive Behavioral Therapy for Posttraumatic Stress Disorder in Patients Injured in Motor Vehicle Accidents. Psychosomatic Medicine, 70 (1), 13-19.

Neuroplasticity not only fixes the negative but it helps grow the positive potential with simple daily activities such as mindfulness, music, yoga, meditation and aerobics.

# How Mindfulness Changes the Brain

**Mindfulness** helps the brain to adapt to new experiences when a person pays close attention to their surroundings and their current state. In acknowledging one's feelings, thoughts, and bodily sensations one can contribute to well being and neuroplasticity. For instance, practicing and teaching mindful meditation leads a brain to develop "a thicker insula – a part of the brain that is activated by paying close attention to something". Moreover, research shows that mindfulness enhances "perceptual ability leading to a greater sense of self-control and self-awareness."[1]



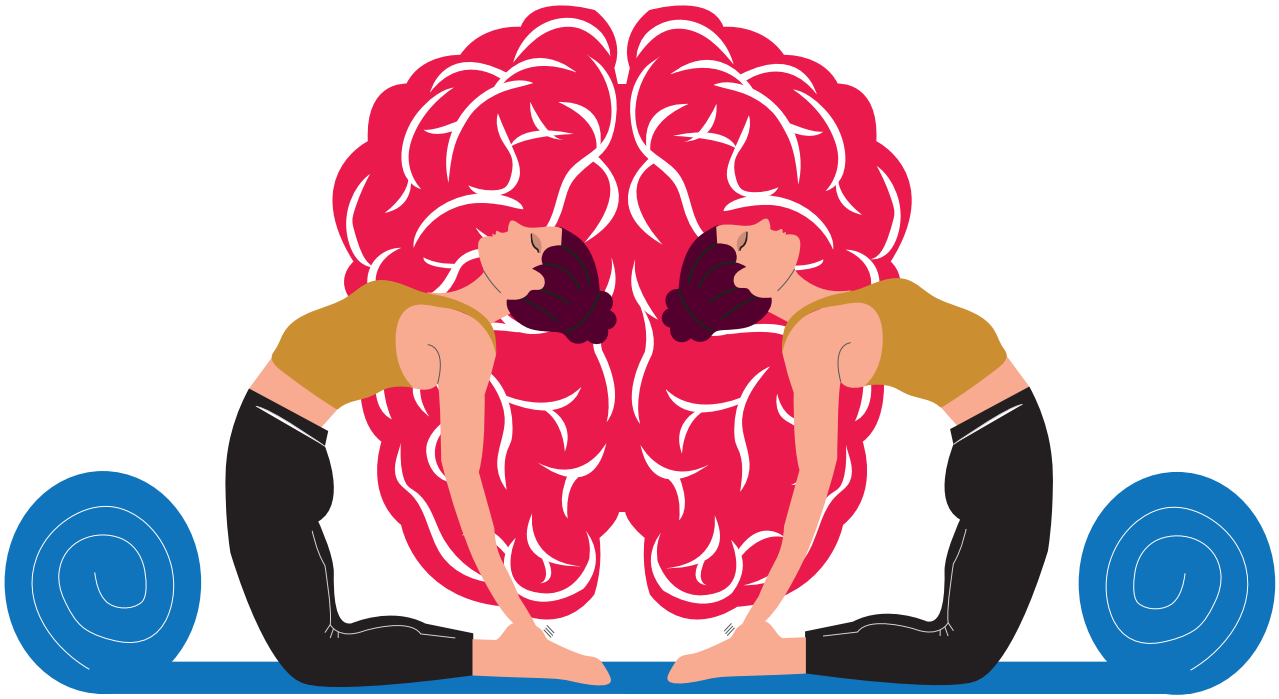
# How music changes the brain

Research on how **music** affects the brain indicates that being trained in music or even just engaging and appreciating music regularly can help the brain enhance its natural neuroplasticity and improve countless abilities and cognitive skills. Listening to music is an impactful way to make structural and functional changes to the brain. A review of several studies found that musicians displayed several differences in the structure and connectivity of the brain compared to nonmusicians are shown in areas including the anterior portion of the corpus callosum, the cortex, the volume of the cerebellum, the volume of the grey matter in motor, auditory, and visuospatial cerebral areas.[2]

1. Passfield, R. (2019). Action Learning and Mindfulness for Mental Health in the Workplace. Action Learning and Action Research: Genres and Approaches. Emerald Publishing Limited, 53-68.
2. Ackerman, C. (2020). What is Neuroplasticity? A Psychologist Explains. Positive Psychology. Retrieved May 12th, 2020, from https://positivepsychology.com/neuroplasticity/

# Yoga, Meditation and Neuroplasticity

Research shows that there was a significant decrease in depression rates on the Beck Depression Inventory in a group of people who took a 12-week course of **yogameditation** compared to a control group.The results suggest that a decrease in depression severity after the Yoga-Meditation course is associated with improved systemic biomarkers of neuroplasticity. Short term yoga and meditation-based lifestyle interventions decrease the clinical severity of depression in association with an increase in neuroplasticity, significantly improving brain physiology and cellular health.[1]



# Aerobics

Research on **aerobic exercise** shows that even brief intervals of low-impact physical activity can help in the cell and neuron growth in the brain and increase of gray matter in the frontal and superior temporal lobe. These changes in the brain can positively impact selective attention, spatial tasks, multi-tasking, and inhibitory processes against problematic behaviors.[2]

1. Tolahunase, M. R., Sagar, R., Faiq, M., & Dada, R. (2018). Yoga-and meditation-based lifestyle intervention increases neuroplasticity and reduces severity of major depressive disorder: A randomized controlled trial. Restorative neurology and neuroscience, 36(3), 423-442.
2. Hertzog, C., Kramer, A. F., Wilson, R. S., & Lindenberger, U. (2008). Enrichment Effects on Adult Cognitive Development. Psychological Science in the Public Interest, 9(1), 1–65. DOI:10.1111/j.1539-6053.2009.01034.x

# Section three:

## Behavioral research on Drama Therapy

## Drama Therapy and anger

Many approaches in **Drama Therapy** can work towards reducing **anger,** which is often the result of culminating negative emotions like anxiety, guilt, fear, and powerlessness. Exercises utilized in Drama Therapy can provide tools to better handle and deal with anger before or as it arises, reducing the possible negative outcomes. A study on violent, offending men found that Drama Therapy Intervention can aid in the long-term reduction of self-reported feelings of anger.[1] The focus on expression and emotional release could play a large part in helping its participants become less susceptible to anger.

## Drama Therapy and PTSD

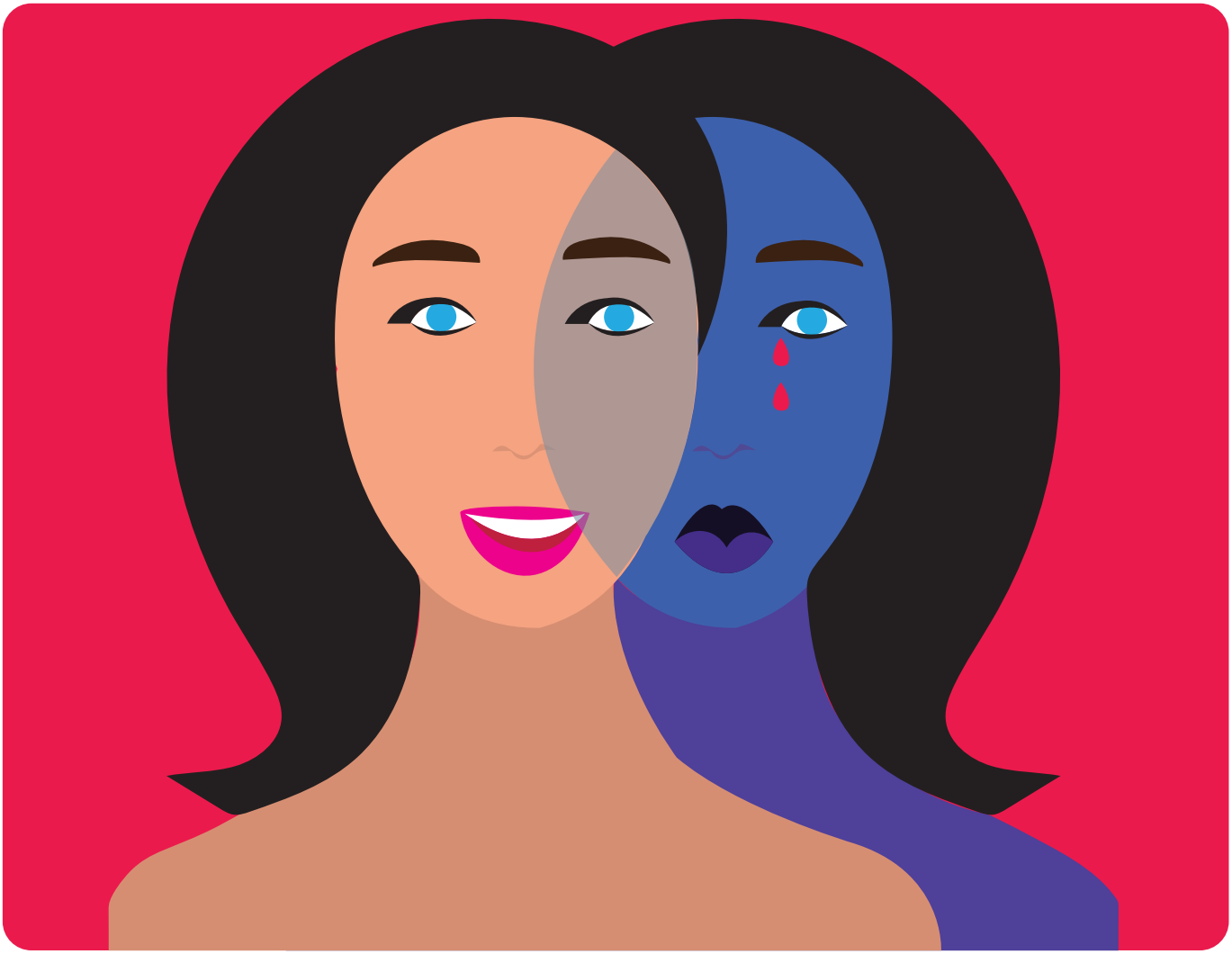
**Drama Therapy** can be used as a psychological intervention for special populations that suffer from a particular mental disorder. **Posttraumatic stress disorder** can be experienced in the aftermath of a traumatic event like war or a natural disaster, and can have lasting and debilitating life long consequences. When used as an intervention for PTSD, Drama Therapy shows promise in addressing the intangible emotional processes like shame, grief by allowing the participant to revisit and transform rage into empathy within a safe and contained environment.[2]


1. Reiss, D., Quayle, M., Brett, T., & Meux, C. (1998). Drama therapy for mentally disordered offenders: changes in levels of anger. Criminal Behaviour And Mental Health, 8(2), 139-153. DOI: 10.1002/cbm.232

2. James, M., & Johnson, D. (1996). Drama therapy in the treatment of combat-related post-traumatic stress disorder. The Arts In Psychotherapy, 23(5), 383-395. DOI: 10.1016/s0197-4556(96)00045-7

# Drama Therapy and depression

The use of **Drama Therapy** as a treatment for **depression** has been used in different contexts and populations. As Drama Therapy can be effective in appropriately releasing strong emotions by promoting playfulness and acceptance within a group, it can be an effective approach for treating depression.[1] When used with the depressed elderly, Drama Therapy offers a space for solidarity with others who also suffer from depression and a way to articulate and express non-verbal emotions through play and metaphor.[2] For young women who have been victims of sexual assault, Drama Therapy provided unconditional positive regard and made them feel accepted, in turn reducing symptoms of depression.[3]




1. Emunah, R. (1983). Drama therapy with adult psychiatric patients. The Arts In Psychotherapy, 10(2), 77-84. DOI: 10.1016/0197-4556(83)90033-3
2. Mackay, B., Gold, M., & Gold, E. (1987). A pilot study in drama therapy with adolescent girls who have been sexually abused. The Arts In Psychotherapy, 14(1), 77-84. DOI: 10.1016/0197-4556(87)90037-2
3. Reinstein, M. (2002). When I Am an Old Woman.... Using Dramatherapy as a Treatment for Depression with Functional Elderly People. Dramatherapy, 24(2), 10-15. DOI: 10.1080/02630672.2002.9689611

# Drama Therapy and social anxiety

**Social anxiety** is a fear of social situations that can interfere with relationships and normal functioning, often resulting in physical manifestations like palpitations and distressed breathing. Social anxiety can severely impact the quality of life for its sufferers by limiting their capacity for social interactions. **Drama Therapy** has been used as a group-based treatment for social anxiety in children and adults. With children, Drama Therapy can significantly reduce symptoms of performance anxiety, social anxiety, and performance-avoidance.[1] For adults with social anxiety, Drama Therapy used role-play as a tool to experiment with otherwise stressful situations to explore them in a safe space. In turn, this resulted in improved self-confidence, assertiveness, extraversion, and a better general emotional state.[2]

1. Anari, A., Dadsetan, P., & Sedghpour, B. (2009). The effectiveness of drama therapy on decreasing the symptoms of social anxiety disorder in children. European Psychiatry Volume, 24(1), 514-523. DOI: https://DOI.org/10.1016/S0924-9338(09)70747-3
2. Figge, P. (1982). Dramatherapy and Social Anxiety. Dramatherapy, 6(1), 3-17. DOI: 10.1080/02630672.1982.9689263

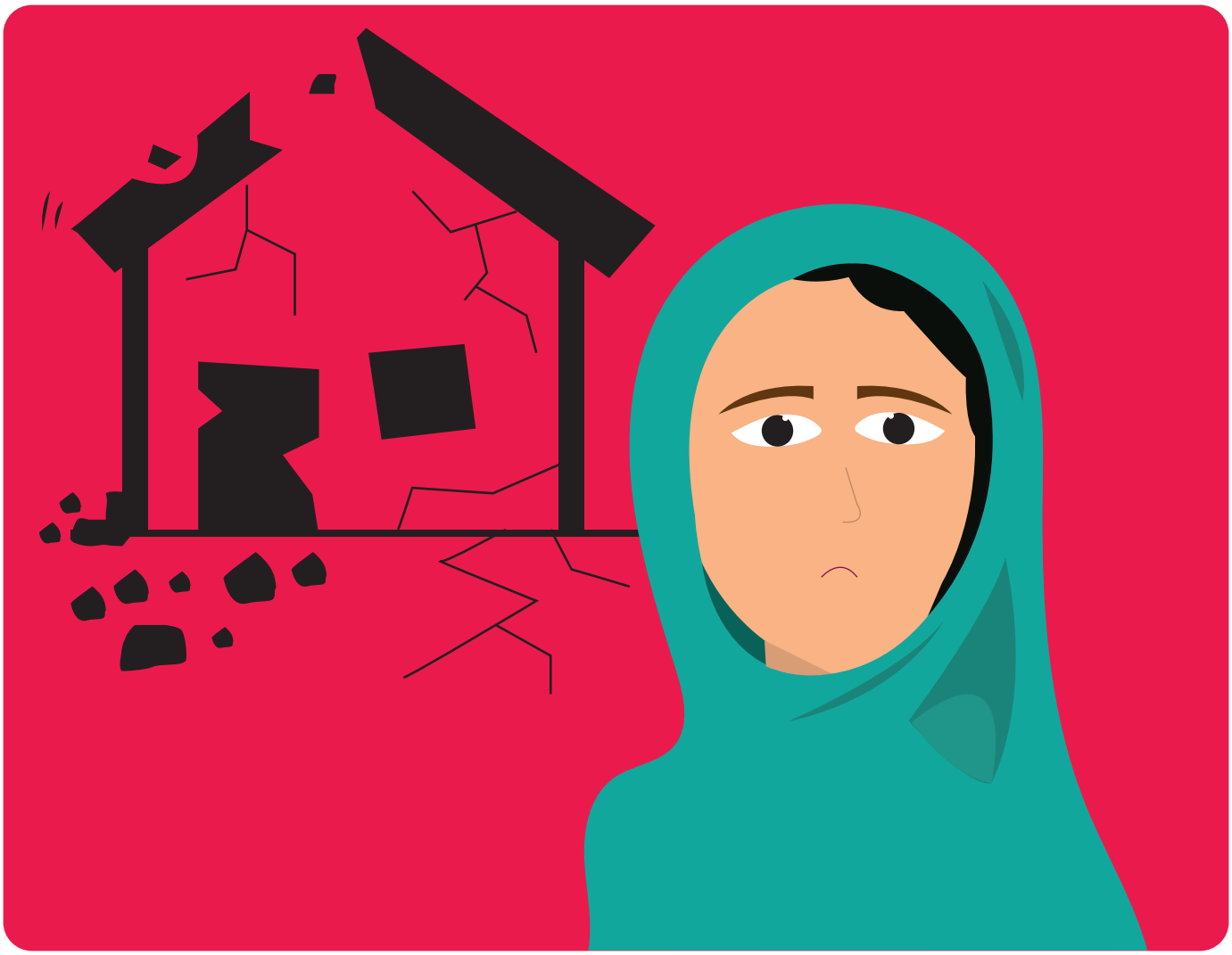
# Drama Therapy and victims of domestic abuse

Victims of **domestic abuse** are likely to report suffering from loneliness, apathy, sadness, aggression, and anger.[1] When applied as a form of treatment, **Drama Therapy** can help victims of domestic violence restore a sense of self and normalize their emotional and mental state to a natural state following abuse and violence.[2] Drama Therapy helped reduce the levels of global distress and improved wellbeing.[2] With younger boys who experienced domestic abuse, Drama Therapy sessions allowed contextualization of complex concepts like understanding the impact of domestic abuse on their self-perception, more importantly, the sessions allowed the boys to feel safe within the group and helped in improving their self-esteem.[3]

1. Avdibegovic, E., Brkic, M., & Sinanovic, O. (2017). Emotional Profile of Women Victims of Domestic Violence. Materia socio-medica, 29(2), 109–113. https://DOI.org/10.5455/msm.2017.29.109-113
2. Campbell Kirk, J. (2015). Dramatherapy with women survivors of domestic abuse: a small scale research study. Dramatherapy, 1–16. DOI:10.1080/02630672.2015.1101480
3. Jarman, S. (2014). The effectiveness of drama therapy for children who have witnessed domestic abuse. Mental Health Practice, 18(2), 19-24. DOI: 10.7748/mhp.18.2.19.e925

# Drama Therapy and refugees

Living through war and forced migration can result in a plethora of psychological complications that might last a lifetime for many refugees. Coping with the loss of loved ones, social status, and future prospects may be detrimental. For adult refugee women, Drama Therapy has proven to be an effective intervention to reduce the negative emotional effects of war and post-migration stress. Furthermore, Drama therapy showed potential in improving emotional well-being and social skills.[3]In a school setting, **Drama Therapy for refugee students** created a safe space where respect and playfulness facilitated tackling sensitive topics like war and violence.[1] Research suggests that Drama Therapy can help reduce symptoms of impairment and improve mathematical performance, suggesting a boost in cognitive abilities.[2]




1 Rousseau, C., Gauthier, M., Lacroix, L., Alain, N., Benoit, M., & Moran, A. et al. (2005). Playing with identities and transforming shared realities: drama therapy workshops for adolescent immigrants and refugees. The Arts In Psychotherapy, 32(1), 13-27. DOI: 10.1016/j.aip.2004.12.002

2. Rousseau, C., Benoit, M., Gauthier, M., Lacroix, L., Alain, N., & Viger Rojas, M. et al. (2007). Classroom Drama Therapy Program for Immigrant and Refugee Adolescents: A Pilot Study. Clinical Child Psychology And Psychiatry, 12(3), 451-465. DOI: 10.1177/1359104507078477

3. Sakhi, S., Kreidie, L., Wardani, F., AlSabah, I. and Anbar, K., 2020. The Power of Theater Expression and Communication: A Psychological Theraputical Intervention in a Refugee Camp: An IPA Study Into the Narratives of Women Refugees' Experience With Drama Therapy. Journal of Psychology Research, 10(1).

# Conclusion

Drama Therapy is a novel promising approach in therapy with much room for further research and understanding. We created this booklet to help lay-people and professionals alike better understand how certain aspects used in Drama Therapy can impact the neurobiology of the brain, and by extension the behavioural changes it evokes. To the best of our knowledge, no neurobiological studies have yet been carried out on the impact of Drama Therapy. We hope that this booklet will prompt the scientific community to invest in this budding field for the betterment of humanity. Intisar Foundation is leading the way as the first and only organization focusing on Drama Therapy and its neurological impact. We are currently working on a first of its kind study on the neurobiological aspect of trauma and Drama Therapy's ability to reduce those indicators.


## Acknowledgements:

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